

CORRES. CONTROL  
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ACTION

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|-------------------|---|
| BERMAN, H.S.      |   |
| CARNIVAL, G.J.    |   |
| COPP, R.D.        |   |
| CORDOVA, R.C.     |   |
| DAVIS, J.G.       |   |
| FERRERA, D.W.     |   |
| FRANZ, W.A.       |   |
| HANNI, B.J.       |   |
| HEALY, T.J.       |   |
| HEDAHL, T.G.      |   |
| HILBIG, J.G.      |   |
| HUTCHINS, N.M.    | X |
| KELL, R.E.        |   |
| KIRBY, W.A.       |   |
| KUESTER, A.W.     |   |
| MAHAFFEY, J.W.    |   |
| MANN, H.P.        |   |
| MARX, G.E.        |   |
| McKENNA, F.G.     |   |
| MORGAN, R.V.      |   |
| PIZZUTO, V.M.     |   |
| POTTER, G.L.      |   |
| SANDLIN, N.B.     |   |
| SATTERWHITE, D.G. |   |
| SCHUBERT, A.L.    |   |
| SETLOCK, G.H.     |   |
| STIGER, S.G.      | X |
| SULLIVAN, M.T.    |   |
| SWANSON, E.R.     |   |
| WILKINSON, R.B.   |   |
| WILSON, J.M.      |   |

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| ADMIN RECORD/080 |   |   |
| PATS/T130G       |   |   |

Reviewed for Addressee  
Corres. Control RFP

4/27/94 CM  
DATE BY

Ref Ltr. #

DOE ORDER # 5400.3

F-46522 (Rev. 01/94)



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# STATE OF COLORADO

## COLORADO DEPARTMENT OF HEALTH

Dedicated to protecting and improving the health and  
environment of the people of Colorado

4300 Cherry Creek Dr. S. Laboratory Building  
Denver, Colorado 80222-1530 4210 E. 11th Avenue  
Phone (303) 692-2000 Denver, Colorado 80220-3716  
(303) 691-4700

April 18, 1994

Ms. Jessie M. Roberson  
U.S. Department of Energy  
Rocky Flats Office, Building 116  
P.O. Box 928  
Golden, Colorado 80402-0928

RE: Potassium Ferrate Treatability Study Work Plan

Dear Ms. Roberson,

The Colorado Department of Health, Hazardous Materials and Waste Management Division (the Division), has reviewed the above referenced document and is providing the attached comments.

The Division approves the Work Plan under the condition that the questions and issues raised in the attached comments are adequately resolved prior to implementation of the work. This can be achieved through a satisfactory response to the comments or incorporation of the changes they suggest into the Work Plan.

If you have any questions regarding these matters, please call Dave Norbury of my staff at 692-3415.

Sincerely,

Gary W. Baughman, Chief  
Facilities Section  
Hazardous Waste Control Program

cc: Arturo Duran, EPA  
Mike Harris, DOE  
Olga Erlich, EG&G  
Laura Perrault, AGO  
Steve Tarlton, RFPU

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ADMIN RECCRD  
SW-A-003741

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Colorado Department of Health  
Comments on the Potassium Ferrate Treatability Study Work Plan

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- 1) Section 1.0, Project Description: It is not clear from the discussion what the source of the "wastewater" will be. The second paragraph on page 4 alludes to "3 to 4 wastewaters". Will this truly be a RFP-derived wastewater, or will it be groundwater identified from the RFEDS data evaluation effort?
- 2) CWQCC stands for Colorado Water Quality Control Commission.
- 3) Section 3.0, Test Objectives: The fourth bullet on page 6 mentions "operational concerns" on the use of potassium ferrate. What are they?
- 4) Section 4.0, Experimental Design/Procedures: It is imperative to know the concentrations of the radionuclides and priority metals in the wastewater prior to beginning the tests. This seems obvious, but lessons learned from the adsorption treatability study make this worth remembering. It is unclear when in the experimental sequence the incoming wastewater analysis is planned.
- 5) Table 4-1: The Division questions the need for the analysis of "anions and others" (column two of the table). These parameters are not of primary interest to this study.
- 6) Table 4-2: Plutonium, americium, aluminum, antimony, cadmium, mercury, and silver have detection limits that are above the correct ARARs listed in Table 3-1. We are aware of only mercury having no analytical method available to meet the CWQCC standard.
- 7) Tables 4-4 and 4-5 (the Phase One approach): The experimental design is not well set up. For instance, it will be impossible to isolate the effects of changing the potassium ferrate dose, because any time that value changes, so does something else. A true linear screening experimental design should have two levels (low/high) with an optional center point, trials arranged so that comparisons of only one variable changing at a time are possible, and replicates are built-in to measure the inherent experimental variability. The way the current matrices are set up, the "optimum" conditions of these parameters required for phase two testing will be difficult to extract.
- 8) Table 4-6: This Phase One table lists "Phase Two Jar Tests" as an analytical requirement (assumably that is just a typo). However, there are a total of 20 Phase One tests listed in Tables 4-4 and 4-5 but only 12 samples listed for analysis in Table 4-6.
- 9) Section 4.3.3: Confirmation tests of proposed optimal conditions found during the experimental sequence is a standard protocol of any robust experimental design and should not be considered optional.
- 10) Section 6.0: The contention that stored wastewater may risk the results of the study mandates that a fixed holding time be specified in this workplan (e.g. "the experimental runs must occur within X days of the sampling event", NOT "sampling of wastewater should be performed fresh each time experiments are planned").